Claims:

What is claimed is:

1. A method of catalytic reaction using a micro-reactor, characterized in that:

said method of catalytic reaction uses a micro-reactor with a metal catalyst or a metal complex catalyst as a solid phase supported on the inner wall of the channel,

a solution dissolving a reactant as a liquid phase and a gas as a gas phase are flown through said channel in pipe flow state, and

three phase catalytic reaction of solid – liquid – gas phases is conducted in which the reaction of said solution and said gas is accelerated by said metal catalyst or said metal complex catalyst.

2. The method of catalytic reaction using a micro-reactor as set forth in claim 1, characterized in that said metal catalyst or a metal complex catalyst is incorporated in a polymer.

3. The method of catalytic reaction using a micro-reactor as set forth in claim 1 or 2, characterized in that said metal catalyst is palladium.

4. The method of catalytic reaction using a micro-reactor as set forth in claim 1 or 2, characterized in that said metal catalyst is either one of chromium, manganese, iron, cobalt, nickel, copper, molybdenum, ruthenium, rhodium, tungsten, osmium, iridium, and palladium.

5. The method of catalytic reaction using a micro-reactor as set forth in claim 1 or 2, characterized in that said metal complex catalyst is a palladium complex catalyst.

6. The method of catalytic reaction using a micro-reactor as set forth in claim 1 or 2, characterized in that said metal complex catalyst is a metal complex catalyst of either one of chromium,

manganese, iron, cobalt, nickel, copper, molybdenum, ruthenium, rhodium, tungsten, osmium, iridium, and palladium.

7. The method of catalytic reaction using a micro-reactor as set forth in claim 1, characterized in that said gas phase consists of hydrogen or carbon monoxide.

8. A method of catalytic reaction using a micro-reactor, characterized in that:

said method of catalytic reaction uses a micro-reactor with a metal catalyst or a metal complex catalyst as a solid phase supported on the inner wall of the channel,

a solution dissolving a substance to be reduced as a liquid phase and hydrogen as a gas phase are flown through said channel in pipe flow state, and

three phase catalytic reductive reaction of solid – liquid – gas phases is conducted in which the reaction of said solution and said gas is accelerated by said metal catalyst or said metal complex catalyst.

9. The method of catalytic reaction using a micro-reactor as set forth in claim 8, characterized in that said metal catalyst or a metal complex catalyst is incorporated in a polymer.

10. The method of catalytic reaction using a micro-reactor as set forth in claim 8 or 9, characterized in that said metal catalyst is palladium.

11. The method of catalytic reaction using a micro-reactor as set forth in claim 8 or 9, characterized in that said metal catalyst is either one of chromium, manganese, iron, cobalt, nickel, copper, molybdenum, ruthenium, rhodium, tungsten, osmium, iridium, and palladium.

12. The method of catalytic reaction using a micro-reactor as

set forth in claim 8 or 9, characterized in that said metal complex catalyst is a palladium complex catalyst.

13. The method of catalytic reaction using a micro-reactor as set forth in claim 8 or 9, characterized in that said metal complex catalyst is a metal complex catalyst of either one of chromium, manganese, iron, cobalt, nickel, copper, molybdenum, ruthenium, rhodium, tungsten, osmium, iridium, and palladium.